Appl. No. 10/698,739
Amdt. dated August 28, 2006
Reply to Office Action of May 11, 2006

PATENT

REMARKS/ARGUMENTS

In this amendment, claims 1, 9, and 15 are amended; claims 21-24 are added; and no claims are canceled. Thus, after entry of this amendment, claims 1-24 will be pending.

Rejection under 35 USC § 112, indefiniteness

Claims 1, 9, and 15 are rejected under 35 USC § 112, ¶ 2, as being indefinite. On page 3, the Office Action states it "is unclear how the new test paths can be included in the new test patterns" as a test pattern is comprised of digital data and a test path is a physical connection that carries digital data.

As amended, claim 1 recites:

> *wherein a test pattern includes program bits that define how routing resources on the programmable integrated circuit are connected to form a test path, wherein a test pattern is designated as failing when a result from a test path is erroneous, wherein the result of the failed test path is created by applying one or more test values to the failed test path*

and

> *generating new test patterns including program bits that define new test paths*

Support for the above amendments amendment can be found, for example, within paragraphs 20 and 23. In light of the above amendments, Applicants respectfully request withdrawal of this rejection. Applicants also submit that independent claims 9 and 15 should be allowable for a similar rationale.

Rejection under 35 USC § 112, written description

Claims 1, 9, and 15 are rejected under 35 USC § 112, ¶ 1, as failing to comply with the written description requirement.

In light of the above amendments, Applicants respectfully request withdrawal of this rejection.

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Rejection under 35 USC § 103, Mortensen in view of Abramovici

Claims 1-20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Mortensen (US Pat. 6,772,402) in view of Abramovici et al. (US Pat. 6,966,020; hereinafter referred to as Abramovici).

Claim 1

Claim 1 is allowable over Mortensen and Abramovici, either alone or in combination, as those references fail to teach or suggest all the elements of claim 1. For example, claim 1 recites:

> *generating new test patterns including new test paths for the subset of the routing resources that occurred most frequently in the failed test paths, wherein each routing resource of the subset has at least one corresponding new test path that includes:*
>> *that routing resource; and*
>> *at least one other resource that was not previously coupled with*
> *that routing resource in one of the failed test paths.*

Mortensen receives a list of paths that fail a timing analysis. *See Mortensen*, col. 2 lines 10-15. Mortensen converts each node of such paths to a node pattern and combines them into a node pattern set. *Id.*, col. 7 lines 36-38 and col. 7 lines 46-55. The most likely to fail node pattern of this set is identified. *Id.*, col. 8 lines 5-11. For this node pattern, a failing list of paths containing that node pattern is identified and output. *Id.*, col. 10 lines 5-35. On page 4, the Office Action states that Mortensen does not disclose "*generating new test patterns including new test paths*," as recited in claim 1.

Abramovici identifies a group of wires under test (WUT) that include a faulty programmable interconnect resource. *See Abramovici*, col. 7 lines 16-17. This identification is accomplished by comparing the outputs of different WUTs. *Id.*, col. 6 lines 55-64. A faulty WUT, such as 32, is analyzed further by subdividing it into two subsequent groups 32a and 32b. *Id.*, col. 7 lines 28-31 and Figure 6. This is a simple <u>bisection</u> of WUT 32. The <u>sum</u> of these subsequent groups 32a and 32b <u>is equal</u> to the group 32. Thus, no new resources are included within any new test paths. Accordingly, within a subsequent group 32a or 32b there is not a

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resource *"that was not previously coupled with that routing resource in one of the failed test paths,"* as recited in claim 1.

In a different step, Abramovici figures out if a particular resource within a subsequent group 32a is faulty by using additional resources to re-route around that particular resource. *Id.,* Figure10 and col. 8 line 65 to col. 9 line 9. Thus, when additional fault free resources are used to re-route around that particular resource, then that routing resource is not included in the new test path. In contrast, claim recites that the new test path *"includes that routing resource."*

Accordingly, Mortensen and Abramovici, either alone or in combination, do not teach or suggest a corresponding new test path for each routing resource under test, where the new test path *"includes that routing resource; and at least one other resource that was not previously coupled with that routing resource in one of the failed test paths,"* as recited in claim 1. Exemplary support of which is provided by Figure 2B and paragraphs 33 and 34.

For at least these reasons, claim 1 is allowable over the cited references. As claim 1 is allowable, claims 2-8 and 21-24 which depend therefrom are also allowable for at least the same rationale.

Claim 9-20

Applicants submit that independent claims 9 and 15 should be allowable for reasons mentioned with respect to claim 1. As claim 9 is allowable, dependent claims 10-14 are allowable for at least the same rationale. As claim 15 is allowable, dependent claims 16-20 are allowable for at least the same rationale.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,

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